

Date: January 25, 2010

Title: 7.5 Absolute Value part 2

Objective:

To solve an absolute value equation.

IN:

Solve:

a) $3x = -9$

b) $2x + 5 = -7$

Solving an Absolute Value Equation

Example #1:

Solve. $|x - 9| = 11$

Solution:

$$x - 9 = 11 \quad \text{or} \quad x - 9 = -11$$

$$x = 20 \quad \quad \quad x = -2$$

$$\text{So, } x = \{-2, 20\}$$

Example #2:

Solve. $2|x| - 3 = 11$

Solution:

First add 3 to both sides, then divide by 2. What would be the result?

$$|x| = 7, \text{ which means } x = 7, \text{ or } -7$$

$$\text{So, } x = \{7, -7\}$$

More practice:

$$4|x + 5| = 20$$

$$|2x + 4| - 3 = 9$$

$$3|2x - 5| + 8 = 11$$

You can solve absolute value equations
using your calculator!

$$3|x| - 4 = 10$$

Put $\longrightarrow 3|x| - 4 \longrightarrow$ in Y_1
Put $\longrightarrow 10 \longrightarrow$ in Y_2

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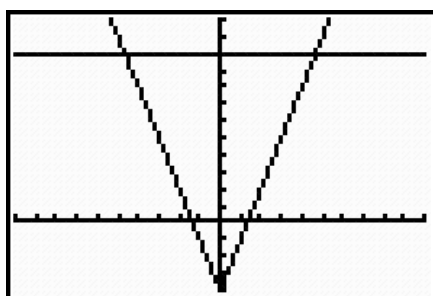
Plot1 Plot2 Plot3
Y1=3abs(X)-4
Y2=10
Y3=
Y4=
Y5=
Y6=
Y7=

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WINDOW
Xmin=-10
Xmax=10
Xscl=1
Ymin=-4
Ymax=12
Yscl=1
Xres=1

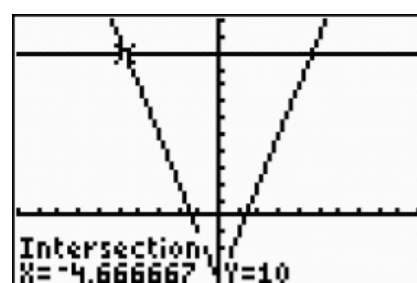
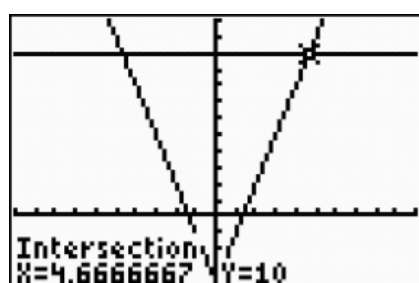
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MATH>
1:value
2:zero
3:minimum
4:maximum
5:intersect
6:dy/dx
7:∫f(x)dx

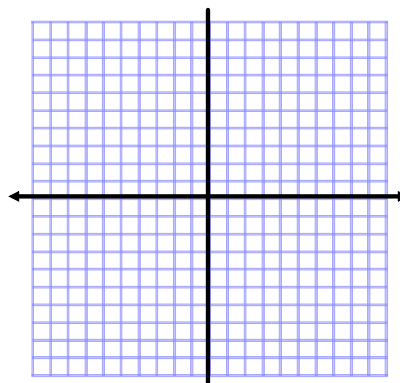
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Graph this one by hand...then check it in your calculator.

$$y = |x - 5| + 2$$

x	y
3	
4	
5	
6	
7	



Summary:

W2L: Make a prediction!

Will an absolute value ever have just one answer? No answers? More than two answers? Write your thoughts in complete sentences.

Out:

Solve: $3|x - 2| + 1 = 7$

Homework:

Make up 5 of your own absolute value equations that have at least two "steps" and solve them!